

Unit 5

Day 4

Factoring Using Integers

Part 4

## Give and Take Method

1)

$$x^4 + x^2y^2 + y^4$$
$$(x^4 + 2x^2y^2 + y^4) - x^2y^2$$

$$(x^2 + y^2)^2 - x^2y^2$$

$$[(x^2 + y^2) - xy][(x^2 + y^2) + xy]$$
$$(x^2 + y^2 - xy)(x^2 + y^2 + xy)$$

$$2) m^4 - 22m^2 + 9$$

$$(m^4 - 6m^2 + 9) - 16m^2$$

$$(m^2 - 3)^2 - 16m^2 \quad \longleftrightarrow \text{DoS}$$

$$[(m^2 - 3) - 4m][(m^2 - 3) + 4m]$$

$$(m^2 - 4m - 3)(m^2 + 4m - 3)$$

3)

$$a^8 + 4$$
$$(a^8 + 4a^4 + 4) - 4a^4$$

$$(a^4 + 2)^2 - 4a^4$$

$$[(a^4 + 2) - 2a^2][(a^4 + 2) + 2a^2]$$

$$(a^4 - 2a^2 + 2)(a^4 + 2a^2 + 2)$$

Factor the following, treating it as the difference of squares.

4)  $y^{12} - 64$

$$(y^6 + 8)(y^6 - 8)$$

$$(y^2 + 2)(y^4 - 2y^2 + 4)(y^2 - 2)(y^4 + 2y^2 + 4)$$

Factor the SAME PROBLEM, treating it as the difference of cubes.

$$4) y^{12} - 64$$

$$(y^4 - 4)(y^8 + 4y^4 + 16)$$

$$(y^2 - 2)(y^2 + 2)[(y^8 + 8y^4 + 16) - 4y^4]$$

$$(y^2 - 2)(y^2 + 2)[(y^4 + 4)^2 - 4y^4]$$

$$(y^2 - 2)(y^2 + 2)(y^4 + 4 - 2y^2)(y^4 + 4 + 2y^2)$$

$$(y^2 - 2)(y^2 + 2)(y^4 - 2y^2 + 4)(y^4 + 2y^2 + 4)$$

Homework:

pg 43-44 70-88 even, 89 and  
Completing the Square Factoring Worksheet